



[7590-01-P]

## NUCLEAR REGULATORY COMMISSION

[Docket No. 70-0398; NRC-2012-0091]

**Exemption Requests for Special Nuclear Material License SNM-362,**

**Department of Commerce, Gaithersburg, Maryland**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Availability of environmental assessment and finding of no significant impact.

**FOR FURTHER INFORMATION CONTACT:** Mary T. Adams, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; telephone: 301-492-3113; e-mail: [Mary.Adams@nrc.gov](mailto:Mary.Adams@nrc.gov).

### SUPPLEMENTARY INFORMATION:

#### I. Introduction

The Nuclear Regulatory Commission (NRC) is considering the issuance of exemptions from Title 10 of the *Code of Federal Regulations* (10 CFR) 36.27(b) and 36.31(a), to be included in the renewal of Special Nuclear Material (SNM) License SNM-362 for the U.S. Department of Commerce, National Institutes of Standards and Technology (NIST) in Gaithersburg, Maryland. NIST requested renewal of SNM-362 in an application dated June 29, 2007 (ML072140750). NIST revised the license renewal application on March 23, 2011 (ML110940239) to include three requests for exemption from NRC regulations in 10 CFR 36.27(b), 36.31(a), and 70.24.

Pursuant to 10 CFR 51.22(c)(14)(v), renewal of materials licenses issued under 10 CFR Part 70 for research and development and for educational purposes is a category of actions which the NRC has determined does not individually or cumulatively have a significant effect on the human environment, and as such, this category of actions does not require environmental review or the preparation of an Environmental Assessment (EA). However, in addition to its application for renewal, NIST has also requested specific exemptions from three NRC regulations, and the exemption requests require environmental review unless the exemptions themselves are also subject to categorical exclusion. One of the exemption requests, that request related to 10 CFR 70.24, has also been determined to belong to the categorically excluded action, specifically those identified in 10 CFR 51.22(c)(25). This determination will be discussed in the safety evaluation report that will support the license renewal.

In accordance with 10 CFR 51.21 the NRC has prepared this EA to assess the environmental impacts of granting the remaining two exemption requests from 10 CFR 36.27(b) and 36.31(a). Based on the EA, the NRC has concluded that a Finding of No Significant Impact (FONSI) is appropriate, and therefore an EIS will not be prepared.

## **II. Environmental Assessment**

On March 23, 2011, NIST provided a revised request for renewal of SNM-362, which authorizes the receipt, possession, and use of source, byproduct, and SNM for research and development purposes. NIST uses licensed materials for research, development, calibration, and testing activities. NIST develops, maintains, and disseminates national standards for ionizing radiation and radioactivity to support health care, industry, and homeland security. Examples of this work include development of reference materials and measurement calibration services for radiopharmaceuticals; maintaining and disseminating standards used by hospitals to calibrate systems; and development of standards and protocols for radiation measurement

instruments used in homeland security. Activities for which the licensed material is used are described in the license renewal application (LRA).

Materials License SNM-362 was first issued by the Atomic Energy Commission in 1960 to the National Bureau of Standards, renamed in 1988 to the National Institute of Standards and Technology. NIST is a Federal agency within the Department of Commerce. The SNM license was renewed in 1979, 1985, 1991, and 1997. The current license was scheduled to expire on July 31, 2007. In accordance with 10 CFR Part 70, NIST submitted an application requesting renewal of Materials License SNM-162 on June 29, 2007 (Agencywide Documents Access and Management System [ADAMS] Accession No. ML072140750) and, in accordance with the timely renewal provision of 10 CFR 70.38(a), the license has remained in effect. In addition to the SNM license, NIST holds a test reactor operating license, TR-5 (Docket No. 50-184), and an NRC Exempt Distribution License No. 19-23454-01E (Docket No. 30-22202) for byproduct material. In response to an NRC Request for Additional Information (ADAMS Accession No. ML103210269), NIST provided a third revised LRA on March 23, 2011 (ADAMS Accession No. ML110940239), which included the requests for exemption from 10 CFR 36.27(b), 36.31(a), and 70.24.<sup>1</sup> The exemption requests that are under consideration in this EA are related to 10 CFR 36.27(b) and 36.31(a). The exemptions were first granted by the NRC in Amendment 2 to SNM-362 issued on November 23, 1999 (ADAMS accession numbers ML993350644 and ML993350646). This EA addresses the action of continuing these previously-granted exemptions in the renewed license.

---

<sup>1</sup> The exemption request for 10 CFR 70.24 is categorically excluded from the requirement to perform an environmental assessment by 10 CFR 51.22(c)(25). The categorical exclusion determination for the criticality accident alarm system exemption will be documented in the Safety Evaluation Report supporting the license renewal.

### Description of the Proposed Action

NIST has been licensed by the NRC for the possession and use of SNM in license SNM-362 since 1960. The exemptions from 10 CFR 36.27(b) and 36.31(a) have been parts of SNM-362 since 1999. The proposed actions are to continue to exempt the licensee from the requirement that the radiation room must be equipped with a fire extinguishing system capable of extinguishing a fire without the entry of personnel into the room (10 CFR 36.27(b)); and the requirements that (1) the console key must be attached to a portable radiation survey meter by a chain or cable, and (2) the door to the radiation room must require the same key used for source movement (i.e., control console key) (10 CFR 36.31(a)) upon renewal of Materials License SNM-362. Continuing these exemptions in the renewed license does not require or authorize any change in licensee operations.

The action of renewing SNM-362 is an action that is categorically excluded from environmental review under 10 CFR 51.22(c)(14)(v), which includes issuance, amendment, or renewal of materials licenses issued pursuant to 10 CFR Parts 30, 31, 32, 33, 34, 35, 36, 39, 40, or 70 authorizing the use of radioactive materials for research and development and educational purposes. The inclusion of the two exemptions requested by NIST in the LRA is an action that requires an EA in accordance with 10 CFR 51.21.

### Need for the Proposed Action

The first part of the proposed action is a continued exemption from 10 CFR 36.27(b), which requires that the irradiation room at a panoramic irradiator be equipped with a fire extinguishing system capable of extinguishing a fire without the entry of personnel into the room. The system for the irradiation room must have a shut-off valve to control flooding into unrestricted areas.

In the initial 1999 request for exemption, NIST indicated that equipment limitations and facility age (then nearly 40 years old) would prevent NIST from complying with 10 CFR 36.27(b). The second part of the proposed action is a continued exemption from 10 CFR 36.31(a). 10 CFR 36.31(a) requires that the key that operates the irradiator be attached to a portable radiation survey meter by a chain or cable. In addition, NIST stated that the age of the facility (then nearly 40 years old) and the interconnectivity of the safety features would make it prohibitively expensive to modify the facility to meet the same-key requirement and would offer no enhancement of safety.

#### Alternatives to the Proposed Action

An alternative to granting the continued exemption to 10 CFR 36.27(b) is to deny the exemption request and require NIST to provide the irradiation room with a fire extinguishing system capable of extinguishing a fire without the entry of personnel into the room with a shut-off valve to control flooding into unrestricted areas.

An alternative to granting the continued exemption to 10 CFR 36.31 is to deny the exemption request and require NIST to provide that the key that actuates the mechanism that moves the sources of a panoramic irradiator be attached to a portable radiation survey meter by a chain or cable.

#### Environmental Impacts of the Proposed Action and Alternatives

The NRC established 10 CFR Part 36 to “specify radiation safety requirements and licensing requirements for the use of licensed radioactive materials in irradiators.” 58 FR 7715; February 9, 1993. At that time, the NRC issued an environmental assessment and finding of no significant impact which analyzed the environmental impacts of the requirements in 10 CFR Part 36, including sections 36.27 and 36.31 (Ref. 3, Enclosure 4). Specifically, the NRC considered the environmental impacts of internal and external radiation exposure resulting from

normal operations, accident scenarios, and abnormal operations. For each of these scenarios, the NRC determined that the safety requirements of the regulation would not have a significant environmental impact. As discussed below, the NRC has determined that the alternatives proposed by the licensee would have the same safety impact as the regulations, and as such, the environmental impacts that were analyzed by the NRC when the regulation was initially promulgated would remain unchanged, and the impacts would not be significant.

Section 36.27(b) requires that the irradiation room at a panoramic irradiator be equipped with a fire extinguishing system capable of extinguishing a fire without the entry of personnel into the room. The system for the irradiation room must have a shut-off valve to control flooding into unrestricted areas.

The irradiation room housing NIST's 10 CFR Part 36 panoramic irradiators are entirely of concrete construction. The rooms are limited in size so there is minimal opportunity for combustible materials to be stored in the area. NIST administratively limits storage of flammable materials in the rooms. As such, the most credible fire incident would be an electrical fire from the control, instrumentation, or lighting systems. This would not be sufficient to engulf or significantly endanger the source.

To compensate for NIST's not complying with 10 CFR 36.27(b), NIST indicated that the signal from the heat or smoke detectors will alert the NIST Fire Protection Group, and that the irradiators are designed to retract the source when the electrical power fails or on loss of air, as may occur during a fire. Fire extinguishers at the site are available to fight small fires and operators are instructed to retract the source, if possible, prior to exiting the facility for a fire involving major portions of the facility. NRC staff determined that the alternative fire protection provisions identified by NIST provide an adequate level of safety for workers and the public.

Based upon the compensatory measures provided by the licensee and described above, NRC staff has determined that potential environmental impacts from a fire in the irradiation room will not be increased by continuing the exemption from 10 CFR 36.27(b) because the

compensatory measures control the likelihood of a fire to a level of protection equivalent to what would be provided by the prescribed measures in 36.27(b). There are no environmental impacts of the proposed exemption to 10 CFR 36.27(b). Granting the exemption will not result in effluents to the environment or an increase in occupational exposure. It also will not increase the likelihood or consequences of a fire at the facility.

Section 36.31(a) requires that the key that operates the irradiator be attached to a portable radiation survey meter by a chain or cable. In the 1999 exemption request, NIST stated that the age of the facility (then nearly 40 years old) and the interconnectivity of the safety features would make it prohibitively expensive to modify the facility to meet the same-key requirement and would offer no enhancement of safety. The key used to enter the irradiation room is captured in the lock when the door is opened. This means that physically the key cannot be moved out of its captured position if the door to the survey room is open. The distance from the lock to the source area is such that attaching the key to a survey meter would require a long chain that could be a trip hazard or get jammed in the chain of the access door when it is opening or closing. NIST's procedure requires that a survey meter be used when entering the room. Additionally, in lieu of attaching a survey meter to the key, NIST installed a radiation detector within the irradiation room. This detector indicates if the source is open, and it is tested every day that the unit is in operation. NRC agreed that the age of the facility and the limitations associated with modifying the safety features made it unreasonable to modify the facility to meet the requirement, and that the added radiation monitors, entrance controls, and security measures would provide comparable safety measures.

Based upon the alternative radiation safety measures provided by the licensee and described above, NRC staff has confirmed that there are no environmental impacts of the proposed exemption to 10 CFR 36.31(a). Granting the exemption will not result in any effluents to the environment or an increase in occupational exposure.

### List of Agencies and Persons Consulted and Identification of Sources Used

NRC staff consulted with the Maryland Department of the Environment. The Department was not opposed to the NRC findings.

The NRC staff determined that consultation with the U.S. Fish and Wildlife Service for compliance with Section 7 of the Endangered Species Act is not necessary because the proposed action does not have the potential to affect listed species or critical habitat.

The NRC staff reviewed the Maryland Inventory of Historic Properties and confirmed that there are no known archeological sites or other historic properties within or immediately adjacent to the NIST campus. Continuing the proposed exemptions in the renewed NIST license is not a type of activity that has potential to cause effects on historic properties. Therefore, no further consultation is required under Section 106 of the National Historic Preservation Act.

### Finding of No Significant Impact

Pursuant to 10 CFR Part 51, the NRC has considered the environmental consequences of taking the proposed action. On the basis of this assessment, the Commission has concluded that environmental impacts associated with the proposed action would not be significant and the Commission is making a finding of no significant impact. Accordingly, preparation of an EIS is not warranted.

### **III. Further Information**

Documents related to this action, including the application for license renewal and supporting documentation, are available electronically at the NRC Library at <http://www.nrc.gov/reading-rm/adams.html>. From this site, you may access ADAMS, which provides text and image files of NRC's public documents. The ADAMS accession numbers for the documents related to this Notice are:



1. NIST Revised License Renewal Application for SNM-362, Docket No. 70-398, March 23, 2011, (ML110940239).
2. Exemptions from 10 CFR Part 36 (TAC No. L31075) and Safety Evaluation Report, November 23, 1999 (ML993350644 and ML993350646).
3. U.S. NRC, September 18, 1992, SECY-92-323, Final Rule on Licenses and Radiation Safety Requirements for Irradiators (ML120940618), Enclosure 4, Environmental Assessment and Finding of no Significant Impact, August 1992.

If you do not have access to ADAMS, or if there are problems in accessing the documents located in ADAMS, please contact the NRC Public Document Room (PDR) Reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to [pdr.resource@nrc.gov](mailto:pdr.resource@nrc.gov). These documents may also be viewed electronically on the public computers located at the NRC's PDR, O1F21, One White Flint North, 11555 Rockville Pike Rockville, MD 20852. The PDR reproduction contractor will copy documents for a fee.

Dated at Rockville, Maryland this 5<sup>th</sup> day of April 2012.

For the U.S. Nuclear Regulatory Commission.

**/RA/**

Kevin Ramsey, Acting Chief  
Fuel Manufacturing Branch  
Division of Fuel Cycle Safety  
and Safeguards  
Office of Nuclear Material Safety  
and Safeguards

